

MONKS (G. H.)

# FRACTURE OF THE HUMERUS

FROM

## AN UNUSUAL CAUSE.

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*(Reprinted from the Boston City Hospital Medical and Surgical Reports.)*





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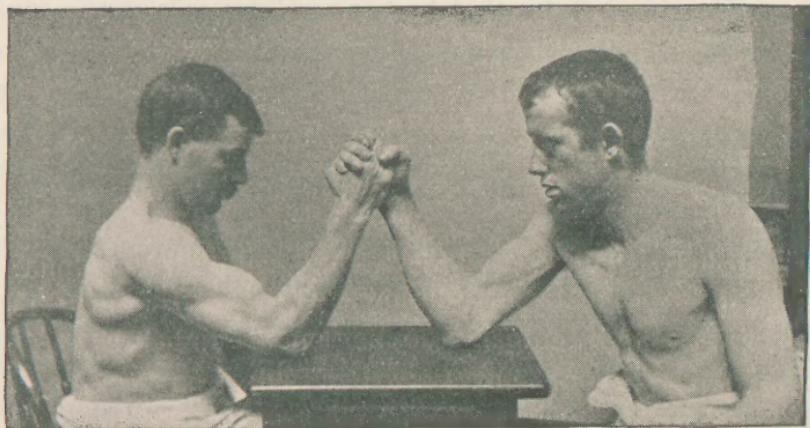


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A WELL-BUILT and apparently healthy man, aged twenty-seven, entered the Boston City Hospital August 8, 1894, having sustained a transverse fracture of the right humerus, just below the insertion of the deltoid. The patient had first been seen by Dr. John Gillespie, of Roxbury, who recommended him for admission to the hospital.



The following is the history of the injury. The patient, C. C., and a friend of his were testing their strength of arm by that well-known method of grasping right hands, palm to palm, over a table, and while the elbows rest upon the table each tries to push his opponent's hand down. I do not know of any English name for this sport, but Hamilton says that the French call it "tourner poignet," or the game of turning wrists. The illustration shows the position taken by the contestants in this sport. The elbows should, however, perhaps be a little closer together than is shown in the

photograph, so that the forearms may be more nearly parallel.

C. C. and his opponent were both exerting considerable force, and for a time neither seemed to gain any advantage, until, finally, C. C. began to push his adversary's hand down. At this moment the adversary made a sudden effort to regain his position, using all his force, when with a snap, so loud that it could be heard all over the room, C. C.'s humerus broke, and his arm fell helpless upon the table.

As to the subsequent history of the case there is nothing noteworthy. The arm was immobilized in the usual fashion in coaptation splints, shoulder-cap, etc., and in the course of six weeks the fragments were firmly united without deformity, and soon after this the arm appeared to be as strong and useful as before the accident.

Several cases of fracture of the humerus during the carrying out of the above form of sport have been recorded, but so few are they as to justify the publication of each new case. Hamilton states that he has seen one case of the kind, and refers to six or seven others which he has found recorded. Stimson ("Treatise on Fractures") mentions the fact that Gurlt gives eleven cases of the sort. It is probable that some of Gurlt's cases are included among those mentioned by Hamilton.

The mechanism of a fracture of the humerus from the above cause is interesting. Apparently the break is occasioned mainly by a twist, or torsion of the shaft of the bone. While the muscles of the upper end of the bone are attempting to rotate the bone inward, the adversary's force (transmitted through the bones of the forearm to the lower end of the humerus) tends to rotate it outwards. The upper end of the bone is therefore forcibly rotated inwards and the lower end is rotated outwards. It is thus evident that when these two opposing forces are great enough, and the other parts do not give way, the humerus must break by extreme torsion somewhere between the two extremities. This must be especially true when the fracture occurs while the forearm is flexed at a right angle on the upper arm. When, however, the shoulder is brought much nearer to the hand, as is often the case during the greatest efforts, and a fracture

occurs, another element probably comes somewhat into play, and the bone breaks by a combination of torsion and outward bowing. Torsion still remains, however, the principal mechanical factor in causing the break.

While the etiology of this fracture is undoubtedly muscular action, it seems to be a rather unusual form of it, and the break might be described as one due to torsion of the shaft of the humerus, caused by prolonged muscular action against resistance suddenly and unexpectedly increased.

In closing, I wish to say that careful investigation was made respecting the existence of syphilis in this case, with negative result. There was also no evidence of the presence of *fragilitas ossium*.









